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PROCEEDINGS
OF
THE ROYAL SOCIETY.

1836.

No. 27.

November 17, 1836.

FRANCIS BAILY, Esq., V. P. and Treasurer, in the Chair.

The following Gentlemen were, by ballot, elected Auditors of the Treasurer's Accounts on the part of the Society, viz.: George Biddell Airy, Esq., A.R.; John Bostock, M.D.; the Rev. George Peacock, M.A.; William H. Pepys, Esq.; and the Rev. Adam Sedgwick, M.A.

“Researches in the Integral Calculus.” Part II. By Henry Fox Talbot, Esq., F.R.S.

Having explained, in the first part of his paper, a general method of finding the sums of integrals, the author proposes, in the second place, to apply this method to discover the properties of different transcendents, beginning with those of the simplest nature. With this view, he first shows its application to the arcs of the circle and the conic sections; and demonstrates the possibility of finding three arcs, such that, neglecting their signs, the sum of two of them shall be equal to the third, though not superposable in any part: an equality which has been hitherto deemed impossible in the ellipse and hyperbola, without the addition of some algebraic quantity.

At a Special General Meeting of this Society, held after the ordinary Meeting of the 17th of November, to consider of an Address to H.R.H. the President, on the happy recovery of his sight, It was Resolved unanimously, That this meeting feels great pleasure in congratulating H.R.H. the President of this Society, on the happy restoration of his sight, a blessing which they sincerely hope he may long enjoy for his own happiness and for the benefit of science.

November 24, 1836.

FRANCIS BAILY, Esq., V.P. and Treasurer, in the Chair.

Sir Edward Thomason, being balloted for, was not elected into the Society.

“Investigation of New Series for the Rectification of the Circle.” By James Thomson, LL.D., Professor of Mathematics in the University of Glasgow. Communicated by Francis Baily, Esq., V.P. and Treasurer R.S.

The author obtains formulæ by which the ratio of the circumference of a circle to its diameter may be computed with much greater facility and expedition than by any of the ordinary methods.

A paper was also in part read, entitled, "Inquiries respecting the Constitution of Salts, of Oxalates, Nitrates, Phosphates, Sulphates, and Chlorides." By Thomas Graham, Esq., F.R.S. Ed., Professor of Chemistry in the Andersonian University of Glasgow, &c. &c. Communicated by Richard Phillips, Esq., F.R.S.

Report upon a Letter addressed by M. LE BARON DE HUMBOLDT to HIS ROYAL HIGHNESS the PRESIDENT of the ROYAL SOCIETY, and communicated by His Royal Highness to the Council.

To His Royal Highness the President and Council of the Royal Society.

PREVIOUSLY to offering any opinion on the important communication on which we have been called upon to report, we feel that it will be proper to lay before the Council a full account of the communication itself. In this letter M. de Humboldt developes a plan for the observation of the Phenomena of Terrestrial Magnetism worthy of the great and philosophic mind whence it has emanated, and one from which may be anticipated the establishment of the theory of these phenomena.

After his return from the equinoctial regions of America, M. de Humboldt, in the years 1806 and 1807, entered upon a careful and minute examination of the course of the diurnal variation of the needle. He was struck, he informs us, in verifying the ordinary regularity of the nocturnal period, with the frequency of perturbations, and, above all, of those oscillations, exceeding the divisions of his scale, which were repeated frequently at the same hours before sunrise. These eccentricities of the needle, of which a certain periodicity has been confirmed by M. Kupffer, appeared to M. de Humboldt to be the effect of a reaction from the interior towards the surface of the globe—he ventures to say, of "*magnetic storms*"—which indicated a rapid change of tension. From that time he was anxious to establish to the east and to the west of the meridian of Berlin, apparatus similar to his own, in order to obtain corresponding observations made at great distances at the same hours, but was for a long period prevented putting his plan into execution by the disturbed state of Germany and his departure for France.

The Baron de Humboldt and MM. Arago and Kupffer having, by the cooperation of many zealous observers, succeeded in establishing permanent magnetic stations extending from Paris to China, M. de Humboldt solicits, through His Royal Highness the President, the powerful influence of the Royal Society in extending the plan, by the establishment of new stations. The plan which he proposes, and which has been successfully carried into execution over a large portion of the north-eastern continent, is that magnetical observations, whether of the direction of the horizontal and inclined needles, or for the determination of the variations of the magnetic force,